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6 August 2021

Mr Andrew Hall  
Deputy Chief Inspector of Rail Accidents  
Cullen House  
Berkshire Copse Rd  
Aldershot  
Hampshire GU11 2HP

Dear Andrew,

**RAIB Report: Partial collapse of a wall onto open railway lines, Liverpool on 28 February 2017**

I write to provide an update<sup>1</sup> on the action taken in respect of recommendations 1 & 2 addressed to ORR in the above report, published on 30 November 2017.

The annex to this letter provides details of actions taken in response to the recommendations and the status decided by ORR. The status of recommendations 1 & 2 is '**Implemented**'.

We do not propose to take any further action in respect of the recommendations, unless we become aware that any of the information provided has become inaccurate, in which case I will write to you again.

We will publish this response on the ORR website on 9 August 2021.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Oliver Stewart', written in a cursive style.

Oliver Stewart

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<sup>1</sup> In accordance with Regulation 12(2)(b) of the Railways (Accident Investigation and Reporting) Regulations 2005

## Recommendation 1

*The intent of this recommendation is that Network Rail is aware of which of its walls have a potentially high safety consequence (eg derailment or significant damage to passing trains) in the event of failure, so that the scope and depth of examinations can be set appropriately to minimise risk to the railway.*

Network Rail should review its wall assets and identify those which have a potentially high safety consequence should they fail (eg train derailment, or large amounts of debris falling on to trains). These should be clearly identified in its database of assets (paragraph 91a).

### ORR decision

1. Network Rail has addressed the recommendation by conducting a review of its retaining wall portfolio and developing a methodology of identifying assets which have a potentially high safety consequence should they fail.
2. The output of the review and identification of walls with potentially high safety consequence has been captured in a specific Network Rail Retaining Wall Risk Tool which also is used as a database, allowing easy identification of walls that present a heightened risk profile.
3. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:
  - taken the recommendation into consideration; and
  - has taken action to implement it.

**Status: Implemented.**

### Previously reported to RAIB

4. On 21 November 2018 ORR reported the following:  
Network Rail provided ORR with a phased plan of the actions they were taking to identify walls with a potentially high safety consequence in the event of failure and once identified, how they would enhance their management of them. ORR accepts that phase 1 of the Network Rail plan meets the requirement of recommendation 1. Network Rail expect to complete this initial phase of the work by December 2018.

### Update

5. On 18 May 2021 Network Rail provided the following closure statement:



[N187-05] Liverpool  
Lime Street Rec 1.pd

## Recommendation 2

*The intent of this recommendation is that for those walls identified (from Recommendation 1) as having a potentially high safety consequence in the event of failure, Network Rail enhances its wall examination and assessment processes to mitigate the additional risk.*

Network Rail should review its structures examination and assessment procedures for its walls that have a high potential safety consequence in the event of failure (identified in response to Recommendation 1 above). This review should include:

a) The level of detail in the information (including photographs) that is currently being collected in both detailed and visual examinations and the sufficiency of this information to allow subsequent examiners and reviewers to make thorough assessments on both condition and changes in loading;

b) The need for additional checks to be done in examinations, including, but not limited to:

- detailed inspections from the tops of cuttings and the non-railway side of walls;
- checks for relevant changes in adjacent land use; and
- potential additional surcharge (eg using photographs and physical markers).

c) The potential for greater use of open source data (eg Google images) and Network Rail's aerial images, to facilitate comparisons between examination reports, where changes in adjacent land use may have an adverse impact on a wall.

d) Provision of information to examiners pertaining to railway boundaries, to enable them to monitor encroachments into Network Rail property. Network Rail should then take steps to implement the identified improvements to its wall examination and assessment procedures.

## ORR decision

6. Network Rail has reviewed its examination procedure for retaining walls. The review identified a need to strengthen the examination requirements for retaining walls, which has been mandated through a revision of the standard for Structures, Tunnels and Operational Property Examinations (NR/L3/CIV/006).

7. The key areas where the standard has been enhanced include: the requirements for reporting changes to land usage adjacent to a structure, in particular whether the changes will affect a structure's stability or the loading it experiences; for detailed examinations, mandating that the examination planner shall plan for the wall to be examined in its entirety and that the examiner shall examine retaining walls from the top and the bottom of the wall to capture any changes adjacent to the structure which may impact the structures' performance; and requirements to capture photographs where outside party activities affect the loading or stability of the structure. It is also positive that the standard now recommends that examinations should where possible be done in daylight.

8. Although the Standard does not explicitly require examination of the non-railway side of walls, there is reference to planning to examine the entire wall, and references to taking photos of the upside and downside elevations – both of which could be taken as requirements to examine the non-railway side.

9. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:

- taken the recommendation into consideration; and
- has taken action to implement it.

**Status: Implemented.**

### **Previously reported to RAIB**

10. On 21 November 2018 ORR reported the following:

We have asked Network Rail to provide more detail about phase 2 of their action plan to show that it meets the specific requirements of the recommendation, particularly around examination and assessment procedures (neither of which are specifically mentioned in the response). We have also asked if there is scope for elements of the phase 2 work to start earlier and run in parallel to stage 1 as it is not dependent on the output from it.

The response recognises that there are delays in the delivery of CSAMS. Our interpretation is that implementation will not be delayed due to any delays with CSAMS and that, in that event, implementation will be achieved by other means, although Network Rail have made clear that the plan is to deliver the improvements through CSAMS, and there are no credible alternatives at this stage.

### **Update**

11. On 18 May 2021 Network Rail provided the following closure statement:



[N187-05] Liverpool  
Lime Street Rec 2.pd

## Previously reported to RAIB

1. Both recommendations were addressed to ORR when the report was published on 30 November 2017.
2. After considering the recommendations ORR passed both recommendations to Network Rail asking them to consider and where appropriate act upon them and advise ORR of its conclusions. The consideration given to each recommendation is included below.
3. ORR also brought both recommendations and the learning point to the attention of other Infrastructure Managers and Light Rail operators as it was concluded that that there are equally important lessons for them. ORR did not ask these organisations to provide a reply.
4. This annex identifies the correspondence with end implementers on which ORR's decision has been based.

## Recommendation 1

*The intent of this recommendation is that Network Rail is aware of which of its walls have a potentially high safety consequence (eg derailment or significant damage to passing trains) in the event of failure, so that the scope and depth of examinations can be set appropriately to minimise risk to the railway.*

Network Rail should review its wall assets and identify those which have a potentially high safety consequence should they fail (eg train derailment, or large amounts of debris falling on to trains). These should be clearly identified in its database of assets (paragraph 91a).

## ORR decision

5. Network Rail provided ORR with a phased plan of the actions they were taking to identify walls with a potentially high safety consequence in the event of failure and once identified, how they would enhance their management of them. ORR accepts that phase 1 of the Network Rail plan meets the requirement of recommendation 1. Network Rail expect to complete this initial phase of the work by December 2018.
6. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:
  - taken the recommendation into consideration; and
  - is taking action to implement it by 31 December 2018.

**Status: Implementation ongoing. ORR will advise RAIB when actions to address this recommendation have been completed.**

## Information in support of ORR decision

7. On 19 June 2018 Network Rail provided the following initial response:

*Network Rail's walls are currently managed on condition and this has demonstrated itself to be a subjective process.*

*Work has been completed to define an operating model that is part of Network Rail's strategic asset management system and process change to the Civil Structures Asset Management System (CSAMS), this includes designs for a Retaining Walls Condition Marking Index (RWCMI) and Risk Prioritisation (RWRP) process.*

*This work encompasses the intent of recommendation 2 from the RAIB report.*

*Given the learnings from recent 'wall' incidents including this one, Network Rail is undertaking additional work to refine these design models including providing interim solutions for routes as the CSAMS programme is delayed.*

*The work is divided into two phases.*

*Phase 1 involves establishing a panel of experts to review the work done to date, initiate cleansing and reconciliation of core data between a number of systems – earthworks, CARRS and Elipse - and developing relevant metrics for the asset population. Where gaps in core data are established and subject to endorsement by the panel of experts the timeframe for establishing the data for implementation of RWCMI and RWRP may involve data capture over a cycle of examination.*

*Phase one is due for completion by December 2018 and this will allow a refined cut of high risk assets. An update to the Network Rail standard CIV/006 will be published to guide more focused management actions for these assets and a feedback loop for testing the process will be implemented via the panel of experts.*

*Phase two consists of the development of likelihood and consequence metrics to allow a refined understanding of which assets are likely to need enhanced management. Associated asset management guidance and rules will be established including trialling across one route and prioritisation tools will be integrated within CSAMS or the interim system as required.*

*Phase 2 will complete by December 2019.*

*A third phase is under consideration and if required will involve development of third party metrics and feedback loops to refine the work done in phase 2. It is expected that by December 2020 this work will be refined again.*

*This work will result in the complete alignment of earthworks and structures management metrics and standards by April 2021.*

## Recommendation 2

*The intent of this recommendation is that for those walls identified (from Recommendation 1) as having a potentially high safety consequence in the event of failure, Network Rail enhances its wall examination and assessment processes to mitigate the additional risk.*

Network Rail should review its structures examination and assessment procedures for its walls that have a high potential safety consequence in the event of failure (identified in response to Recommendation 1 above). This review should include:

- a) The level of detail in the information (including photographs) that is currently being collected in both detailed and visual examinations and the sufficiency of this information to allow subsequent examiners and reviewers to make thorough assessments on both condition and changes in loading;
- b) The need for additional checks to be done in examinations, including, but not limited to:
  - detailed inspections from the tops of cuttings and the non-railway side of walls;
  - checks for relevant changes in adjacent land use; and
  - potential additional surcharge (eg using photographs and physical markers).
- c) The potential for greater use of open source data (eg Google images) and Network Rail's aerial images, to facilitate comparisons between examination reports, where changes in adjacent land use may have an adverse impact on a wall.
- d) Provision of information to examiners pertaining to railway boundaries, to enable them to monitor encroachments into Network Rail property. Network Rail should then take steps to implement the identified improvements to its wall examination and assessment procedures.

## ORR decision

8. We have asked Network Rail to provide more detail about phase 2 of their action plan to show that it meets the specific requirements of the recommendation, particularly around examination and assessment procedures (neither of which are specifically mentioned in the response). We have also asked if there is scope for elements of the phase 2 work to start earlier and run in parallel to stage 1 as it is not dependent on the output from it.

9. The response recognises that there are delays in the delivery of CSAMS. Our interpretation is that implementation will not be delayed due to any delays with CSAMS and that, in that event, implementation will be achieved by other means, although Network Rail have made clear that the plan is to deliver the improvements through CSAMS, and there are no credible alternatives at this stage.

10. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:

- taken the recommendation into consideration; and
- is taking action to implement it, but ORR has yet to be provided with a response that fully address all areas of the recommendation and a time-bound plan for that work.

***Status: Progressing.* ORR will advise RAIB when further information is available regarding actions being taken to address this recommendation.**

**Information in support of ORR decision**

On 19 June 2018 Network Rail provided an initial response – see para 7.